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A new species of *Melomys* (Rodentia: Muridae) from Riama Island, Tanimbar Group, Maluku Tenggara, Indonesia

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Abstract – Three specimens of *Melomys* recently collected from Riama Island, Tanimbar group, Maluku Tenggara, are herein described as a new species.

INTRODUCTION

Prior to October 1992, members of the essentially Australo–papuan murid rodent genus *Melomys* Thomas, 1912 were unreported from the islands of the southern Maluku Administrative Province of Indonesia. Since that date, terrestrial vertebrate surveys of this region by staff from the Western Australian Museum and the Museum Zoologicum Bogoriense have collected *Melomys rufescens* (Alston, 1877) and *M.* cf. *levipes* (Thomas, 1897) from Aru Island; *M. bannisteri* Kitchener and Maryanto, 1993 from Kai Besar Island and *M. cooperae* Kitchener, 1995 from Yamdena Island (Tanimbar Group).

A recent visit to Riama Island (Pulau Riama), a small islet approximately 6 km from the west coast of Salaru Island in the Tanimbar group of islands (Figure 1), resulted in the collection of three specimens of *Melomys*. This paper describes these specimens as a new species.

METHODS

Two of the Riama Island specimens were collected by D.J. Kitchener by hand. A third specimen was purchased from fishermen on that island. This latter specimen was infested with maggots; its skull was removed and cleaned at Saumlaki, Yamdena Island, but its carcase was disposed of by accident by hotel staff after its sex was determined.

The two freshly collected specimens were weighed in the field prior to their fixation with formalin. External measurements were recorded from these two specimens following their fixation. All measurement (in mm) were taken with digital callipers: externals to 0.1 mm; skull and dental to 0.01 mm. Measurement points follow Tate (1951). Pelage and colour descriptions were determined from the colour charts of Smithe (1975). Scale number per cm was averaged from six measurements recorded from the mid part of the tail.

Adult condition was judged from reproductive status because as noted in Kitchener and Maryanto (1995) basicranial sutures were clearly visible in specimens of *Melomys cooperae* from Yamdena Island that were reproductively mature and had very worn teeth. This was also the situation with the two female *Melomys* from Riama Island.

TAXONOMY

Melomys howi Kitchener sp. nov.
Figures 1–3, Table 1

Holotype

Museum Zoologicum Bogoriense specimen number 15912 (field number WAM M44753); adult (pregnant) female; weight 73 gm; carcase fixed in 10% formalin and preserved in 70% ethanol; skull separate; collected by hand on 11 November 1994 by D.J. Kitchener.

Paratypes

Western Australian Museum number WAM M44754, adult (recently parturient) female, weight 61 gm; carcase fixed in 10% formalin and preserved in 70% ethanol; skull separate. Collected by hand on 11 November 1994 by D.J. Kitchener. WAM M44755, old adult male with very worn teeth; skull only. Purchased on 12 November 1994. From same locality as holotype.

Type Locality

Riama Island (Pulau Riama); Tanimbar Group; Maluka Tenggara, Indonesia (8°09′S, 130°53′E); at sea level; on white sand 30 metres from coast in an open moderately high (to 2 metre) shrubland.

Diagnosis

Melomys howi differs from all other species of *Melomys* by having the following combination of characters: small body and skull size; white abdominal fur; three hairs per tail scale; tail scales flat and not sculptured; 11–13 scales per cm in mid section of tail; bicoloured tail; broad feet; narrow

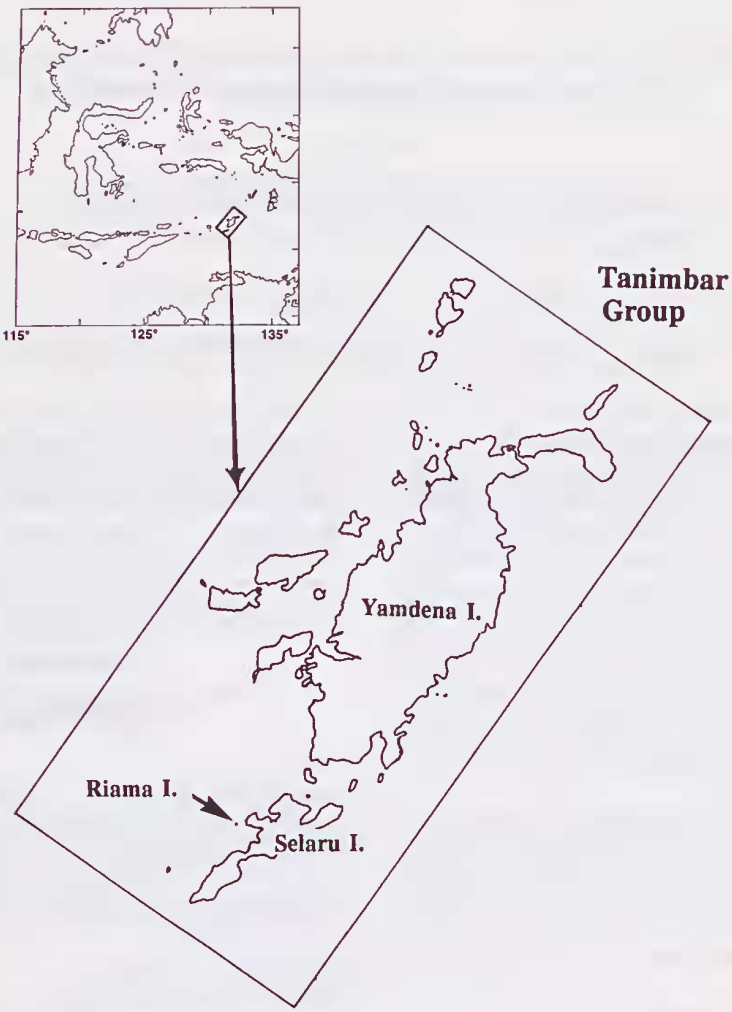

Figure 1 Map showing the locality of Riama Island and the Tanimbar groups of islands.

interorbital region; M^1 and M^2 with well developed posterior cingulum with central vestigial cusplet; unreduced M^3; and long incisive foramen.

Description

Measurements of skull, dentition and externals are presented in Table 1.

Skull (Figure 2)

Skull small: greatest skull length 31.2–34.0 and zygomatic width 16.2–16.3, with a narrow rostrum. Skull dorsal profile sharply curved from nasal distal tip to anterior part of frontal when it slopes gently downward to mid parietal region and then more sharply downwards to the posteriormost edge of skull; interparietal wide (8.8–9.1); parietal moderately inflated; frontal anterior part forms a slight median sulcus that reaches to posterior one-quarter of nasal; nasal moderately long (11.3–12.3), constricted proximally and flared to a breadth of 3.8–4.2 distally; anterior edge of premaxilla flange projected dorsally above incisor, almost vertical or slightly convex leading edge – nasal projects to a point approximately above or slightly anterior to this leading edge; zygomatic arch moderately thickened; zygomatic plate broad (4.3–4.9), anterodorsal part of leading edge projects furthest anteriorly from which point it curves gently posteriorly; infraorbital fissure moderately wide; lachrymal bones elongate, project only slightly outside curve of orbit edge; postsquamosal hook well developed, forms a slight vertical ridge with lateral occipital and mastoid – this ridge does not progress to interparietal posterior margin;

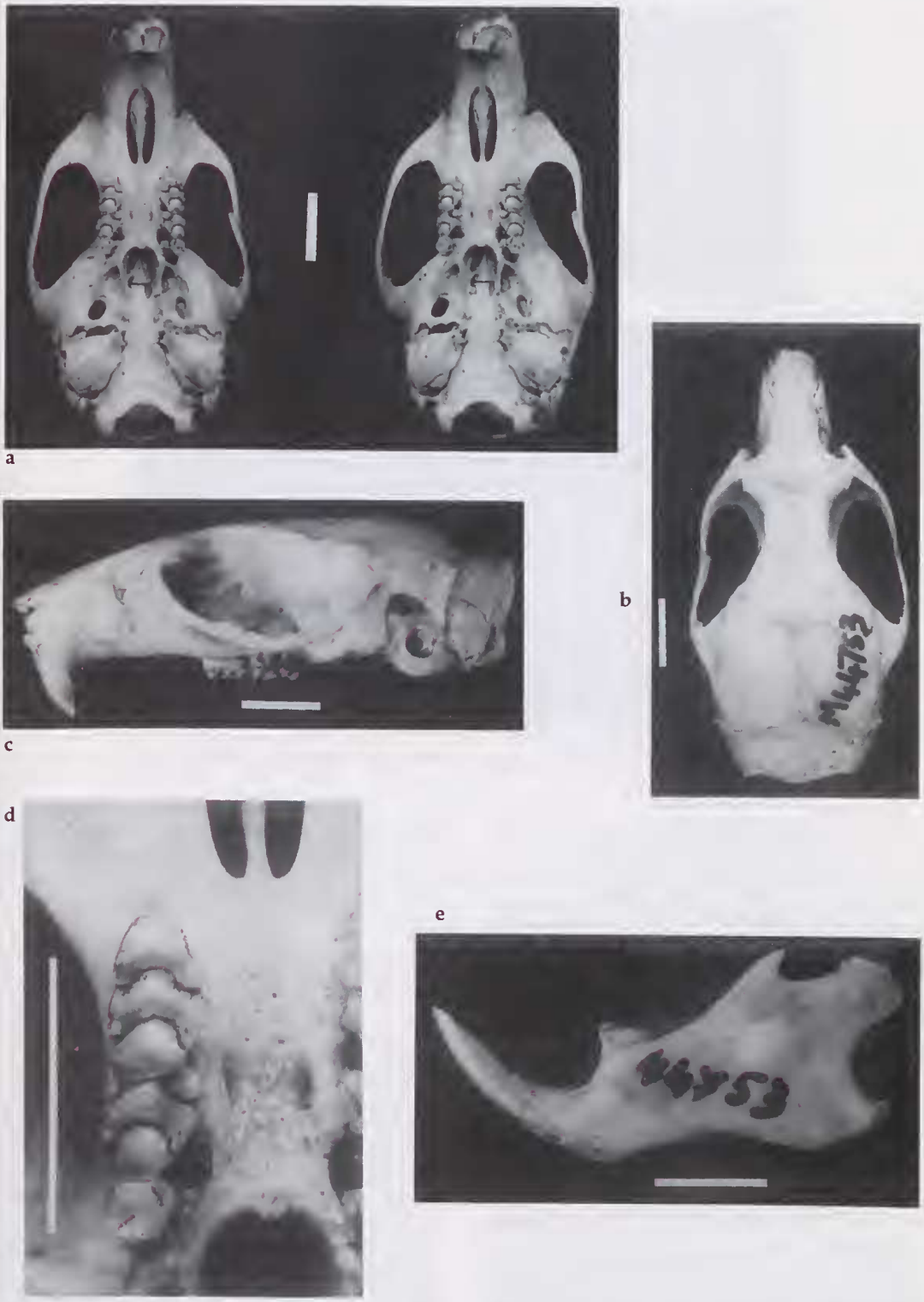

Figure 2 Skull, a, ventral view (stereopair), b, dorsal view, c, lateral view; d, right upper molar row; e, dentary. Scale 5 mm.

Table 1 Measurements (in mm) of the skull, dentition and external body and weight of *Melomys howi* holotype and paratypes.

CHARACTER	Holotype MZB15912	WAM M44754	WAM M44755
Sex	♀	♀	♂
Greatest skull length	32.19	31.17	33.93
Condyloincisor length	29.91	28.60	31.73
Zygomatic width	16.16	16.29	–
Interorbital breadth	4.61	4.90	4.96
Interparietal breadth	8.76	9.12	9.07
Braincase breadth	12.87	13.56	–
Mastoid width	11.44	11.63	–
Nasal length	12.25	11.29	12.10
Nasal breadth	4.00	3.78	4.22
Zygomatic plate breadth	4.37	4.34	4.90
Diastema length	8.42	7.59	9.56
Height muzzle (behind ant. pal. for.)	8.10	8.05	8.66
Palatal length	16.29	15.16	17.21
Ant. palatal foramen length	5.56	4.84	5.95
Ant. palatal foramen breadth	2.00	2.03	2.13
Mesopterygoid fossa breadth	2.49	2.58	2.71
M^1–M^1 breadth (inside)	2.65	2.53	2.57
Bulla length	4.72	4.60	4.59
M^1–M^3 crown length	6.02	6.11	5.98
M^1–M^3 alveoli length	6.14	6.37	6.42
M^1 crown length	3.12	3.16	3.02
M^1 crown breadth	1.79	1.89	1.79
M^2 crown length	2.37	2.25	2.13
M^2 crown breadth	1.77	1.82	1.80
M^3 crown length	1.25	1.18	1.42
M^3 crown breath	1.33	1.24	1.33
Dentary length	18.92	18.24	20.14
M_1M_3 (crown) length	6.21	6.07	–
Snout to vent length	112.2	111.5	–
Tail to vent length	135.6	137.2	–
Ear length (from basal notch)	15.5	15.2	–
Pes length (without claw)	27.2	26.0	–
Pes breadth to base of digit V	7.7	7.2	–
Tibia length	37.0	32.7	–
Weight (gm)	73	61	–
Scale No./cm	12.2 ± 0.8	12.7 ± 0.7	–

postglenoid foramen large, projects dorsally to form crescent shape; temporal ridges faint, immediately anterior to frontal/parietal suture; rostrum posterolateral swelling only slightly inflated; anterior palatal foramen long (4.8–6.0) but terminate posteriorly anterior of M^1 anterior alveolus, slightly bowed outwards; palate narrow, posterior part highly fenestrated, terminating posteriorly at a point level with anterior part of M^3; mesopterygoid and parapterygoid fossae narrow; foramen ovale ventral fossa large; bulla moderately long (4.6–4.7), moderately inflated, with short and robust eustachian process.

Dentition (Figure 2)

Molars moderately large, M^3 cusp very long for *Melomys* (see Menzies 1990, Figure 3), M^3 cusp length 20–22% length of M^{1-3} cusp length; M^1 anterior and intermediate lamellae with very well developed lingual cusps; posterior lamella without lingual cusp but with spacious posterior cingulum with a central vestigial cusp; M^2 with moderately large anterolingual cusp only remaining of anterior lamella, intermediate and posterior lamellae well developed – the latter with posterior cingulum and central vestigial cusp as on M^1. M^3 with small anterolingual cusp, separate from posterior

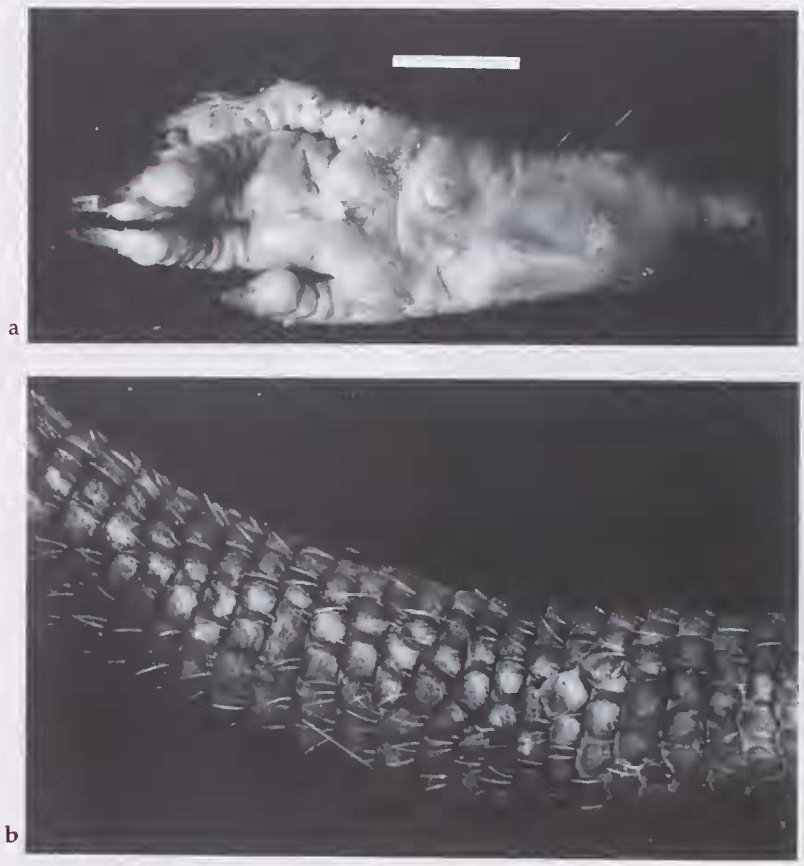

Figure 3 Pes plantar surface, a and tail, b, of *Melomys howi* holotype. Scale, 5 mm.

lamella; molar rows diverge posteriorly from each other; upper incisors slightly opisthodont, anterior face orange. First and second lower molars each with well-developed posterior cingulum.

Externals (Figure 3)

Small body size with snout to vent length 112 and weight 61–73 gm. Tail long (136–137) and averaging 121–123% of body length; ears short (15.2–15.5); pes moderately long (26.0–27.2), and wide (7.2–7.7). Scales on tail not raised to form a ridge or hump (Figure 3b). Plantar pads of pes and manus similar to those of *M. bannisteri* from Kai Besar Island but differ from those of *M. cooperae* in that the interdigital pads between digits 2 and 3 do not overlap the interdigit pad between digits 1 and 2 (Figure 3a). There are two pairs of inguinal teats.

Pelage

Dominant colour of dorsal surface pelage tawny, resulting from tawny tipping to the medium neutral gray colour of basal two-thirds of hairs. Head slightly contrastingly coloured: cinnamon and forehead evenly grading into smoke gray of temporal region, but contrasting with buff yellow of cheeks, small white patch at base of the mysticial vibrissae and dark rings around eyes. Hairs in mid dorsum with length of 15 while those of mid forehead 8; flanks cinnamon tipping to the medium neutral gray of basal two-thirds of hairs. Lips, throat, chest, abdomen to anus, inside of thigh, manus and pes upper surface white; interface between white of abdomen and cinnamon of flanks cream color. Abdomen hairs 10 long; outer leg surface buff yellow. Ear pinna skin antique brown; pinna lightly furred inside and outside with short clay color hairs. Tail skin bicoloured: glaucous dorsally and a pale neutral gray ventrally.

Tail scales with three hairs per scale; tail hairs moderately long (0.8) slightly longer than scale breadth.

On head numerous black mysticial vibrissae up to 45 long; numerous short (up to 10 mm) white submental vibrissae; two short (up to 5) white interramal vibrissae; a single long (up to 18) black genal vibrissa; several long (up to 20) black

Figure 4 Habitat of *Melomys howi* at type locality.

supraorbital vibrissae and 1–3 long (up to 8) white ulnar vibrissae.

Habitat

Pulau Riama is a small flat sandy islet that as recently as 1990 was a noted nesting site for Green and Hawskbill turtles. Since then hunting of turtles on this island by fishermen from nearby Salaru Island has resulted in the virtual absence of turtles nesting on the island. The presence of numerous turtle hunters and fishermen on the island has also led to the disturbance of much of the low dune vegetation fringing the coast. *Melomys howi* favours the open low bushes (Figure 4), particularly beneath the patches of moderately closed stands of 5 m high *Casuarina* trees fringing the coast. A group of 10–15 *M. howi* individuals were observed in an area of about 5 m^2 for about one hour between 1200 – 1300 hrs feeding on seeds in the leaf litter beneath shrubs.

Reproduction

The female holotype was pregnant with two small foetuses in the left uterine horn. The crown to rump length of these foetuses was approximately 7.4. There were no obvious implantation scars on the right uterine horn.

The other female collected (WAM M44754) had recently given birth; its left uterine horn was only partially involuted, bruised, and had two clear implantation sites. Vestiges of an umbilical cord were apparent in the vagina. No implantation scars were observed in the right uterine horn. The four inguinal teats were slightly enlarged to a length of 1.8 and there was more mammary development than in the pregnant holotype.

Etymology

Named after Dr Richard Alfred How in commemoration of his fiftieth birthday and in acknowledgement of his great contribution to the field work involved in the terrestrial vertebrate faunal survey of eastern Indonesia between May 1988 to September 1993.

Remarks

Melomys howi differs from the other *Melomys* on the Tanimbar Islands (*M. cooperae* Kitchener, 1995) in having three long rather than one short hair per tail scale; considerably smaller cranial dimensions; posterior cingulum of m^{1-2} less well developed and in details of plantar pads.

It differs from the geographically next closest *Melomys* (*M. bannisteri* Kitchener and Maryanto, 1993) from Kai Besar island, Maluku Tenggara, in having three hairs per tail scale; in dental morphology; more inflated bulla; longer incisive foramen which is widest anteriorly rather than posteriorly; tail longer and much longer tail hairs.

It may be superficially confused with some forms of *Melomys lutillus* (Thomas, 1913), a species complex with a New Guinea and Northern Australian distribution. It, however, differs from *M. lutillus* in having larger skull measurements; broader pes; and in having larger scale tails except for the forms *M. l. frigicola* Tate, 1951, and *M. l. froggatti* Troughton, 1937. It differs from *M. l. frigicola* in having snout to vent length smaller (111–112 *v.* 130); bulla shorter (4.6–4.7 *v.* 4.8); and zygomatic plate much broader (4.3–4.9 *v.* 3.5). It differs from *M. l. froggatti* in having abdominal fur white and not grey; and a cranium not abruptly rounded anteriorly.

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